

WHAT IS CLAIMED AS NEW AND DESIRED TO BE SECURED BY  
LETTERS PATENT OF THE UNITED STATES IS:

1. An Fe-Ni-Co alloy whose chemical composition comprises, by weight based on total weight:

$$32\% \leq \text{Ni} \leq 34\%$$

$$3.5\% \leq \text{Co} \leq 6.5\%$$

$$0\% \leq \text{Mn} \leq 0.1\%$$

$$0\% \leq \text{Si} \leq 0.1\%$$

$$0\% \leq \text{Cr} \leq 0.1\%$$

$$0.005\% \leq \text{C} \leq 0.02\%$$

$$\text{S} \leq 0.001\%$$

$$0.0001\% \leq \text{Ca} \leq 0.002\%$$

$$0.0001\% \leq \text{Mg} \leq 0.002\%$$

and further comprising iron and impurities resulting from smelting; the chemical composition of the alloy furthermore satisfying the relationships:

$$\text{Co} + \text{Ni} \leq 38.5\%$$

$$\text{Co} + 0.5 \times \text{Ni} \geq 20\%$$

$$\text{Co} + 5 \times \text{Ni} \geq 165.5\%$$

and

$$\text{S} \leq 0.02 \times \text{Mn} + 0.8 \times \text{Ca} + 0.6 \times \text{Mg}.$$

2. The alloy as claimed in claim 1, wherein copper, molybdenum, vanadium and niobium contents are each present in less than 0.1%.

3. The alloy as claimed in claim 2, wherein the sum of the weight percentages of manganese, silicon,

chromium, copper, molybdenum, vanadium and niobium is less than 0.3%.

4. The alloy as claimed in claim 1, wherein the oxygen content is less than or equal to 0.01%, the nitrogen content is less than or equal to 0.005%, and the phosphorus content is less than or equal to 0.005%.

5. The alloy as claimed in claim 2, wherein the oxygen content is less than or equal to 0.01%, the nitrogen content is less than or equal to 0.005%, and the phosphorus content is less than or equal to 0.005%.

6. The alloy as claimed in claim 3, wherein the oxygen content is less than or equal to 0.01%, the nitrogen content is less than or equal to 0.005%, and the phosphorus content is less than or equal to 0.005%.

7. A shadow mask, which comprises at least one foil drilled with holes, said foil comprising an alloy whose chemical composition comprises, by weight based on total weight:

$$32\% \leq \text{Ni} \leq 34\%$$

$$3.5\% \leq \text{Co} \leq 6.5\%$$

$$0\% \leq \text{Mn} \leq 0.1\%$$

$$0\% \leq \text{Si} \leq 0.1\%$$

$$0\% \leq \text{Cr} \leq 0.1\%$$

$$0.005\% \leq \text{C} \leq 0.02\%$$

$$\text{S} \leq 0.001\%$$

$$0.0001\% \leq \text{Ca} \leq 0.002\%$$

$$0.0001\% \leq \text{Mg} \leq 0.002\%$$

and further comprising iron and impurities resulting from smelting; the chemical composition of the alloy furthermore satisfying the relationships:

$$\text{Co} + \text{Ni} \leq 38.5\%$$

$$\text{Co} + 0.5 \times \text{Ni} \geq 20\%$$

$$\text{Co} + 5 \times \text{Ni} \geq 165.5\%$$

and

$$\text{S} \leq 0.02 \times \text{Mn} + 0.8 \times \text{Ca} + 0.6 \times \text{Mg}.$$

8. A method of forming a shadow mask, comprising drilling holes in a foil and drawing said drilled foil, wherein the foil comprises an alloy having a chemical composition which comprises, by weight based on total weight:

$$32\% \leq \text{Ni} \leq 34\%$$

$$3.5\% \leq \text{Co} \leq 6.5\%$$

$$0\% \leq \text{Mn} \leq 0.1\%$$

$$0\% \leq \text{Si} \leq 0.1\%$$

$$0\% \leq \text{Cr} \leq 0.1\%$$

$$0.005\% \leq \text{C} \leq 0.02\%$$

$$\text{S} \leq 0.001\%$$

$$0.0001\% \leq \text{Ca} \leq 0.002\%$$

$$0.0001\% \leq \text{Mg} \leq 0.002\%$$

and further comprising iron and impurities resulting from smelting; the chemical composition of the alloy furthermore satisfying the relationships:

$$\text{Co} + \text{Ni} \leq 38.5\%$$

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$$\text{Co} + 0.5 \times \text{Ni} \geq 20\%$$

$$\text{Co} + 5 \times \text{Ni} \geq 165.5\%$$

and

$$\text{S} \leq 0.02 \times \text{Mn} + 0.8 \times \text{Ca} + 0.6 \times \text{Mg}.$$